



SEQUENCE LISTING

<110> Wu, Keqiang
Miki, Brian L
Tian, Lining
Brown, Dan

<120> Repressing Gene Expression in Plants

<130> 104107.1

<140> US 09/645,337

<141> 2000-08-25

<150> US 09/383,971

<151> 1999-08-27

<160> 14

<170> PatentIn version 3.2

<210> 1

<211> 1807

<212> DNA

<213> Arabidopsis thaliana

<400> 1

agagagcagc tcccttcccc tcggcgagga ggaaggaaga agaaagccag agagagagag 60
agagatcatt gcagcttctc ctccgaccat ttgactgcga ctgtgattac aacacaccgt 120
tgatcctacg aaaaagaggt aatggatact ggccggcaatt cgttggcgtc cggacctgat 180
ggtgtgaaga ggaaagtttg ttattttctat gacctgagg tcggcaatta ctactatggc 240
caaggtcatt ccatgaagcc ccctgcattc cgcattgacc atgcctctct cgtctactac 300
ggtctccttc agcatatgca ggtttctcaag cccttccctg ccgcggaacg tgatctctgc 360
cgcttccacg ccgacgacta tgtctctttt ctccgcagca ttaccctga aaccacgcaa 420
gatcagattc gccaaactta ggccttcaat gttggtgaag actgtccctg ctttgaaggc 480
ctttattcct ttgcccagac ctatgctgga ggatctgttg gtggctctgt caagcttaac 540
cacggcctct gcgatattgc catcaactgg gctgggtggt tccatcacgc taagaagtgc 600
gaggcctctg gcttctgtta cgtcaatgat atcgtcttag ctatcctaga gctccttaag 660
cagcatgagc gtgttcttta tctcgatatt gatatccacc accgggatgg agtggaggag 720
gcattctatg ctactgacag gggttatgact gtctcgtttc ataaatttgg tgattacttt 780
ccgggtacag gtcacattca ggatataggt tatggtagcg gaaagtacta ttctctcaat 840
gtaccactgg atgatggaat ccatgatgag agctatcatt tcttattcaa gccatcattg 900
gggaaagtta tggaaatttt ccgaccaggg gctgtgggtat tgaattgtgg tcttgactcc 960
ctatctgggg atcgggttagg ttgcttcaat ctttcaattc aaggctcatt tgagtggctc 1020

aaatttatga gatcgttcaa tgttcccccta ctgctcttgg gggttggtgg ttacaactatc 1080
 cgcaatgttg cccgttgctg gtgctacgag actggagttg caattggagt tgaagttgaa 1140
 gacaagatgc cggagcatga atattatgaa tactttgggc cagactatac acttcaogtt 1200
 gotccaagta acatggaaaa taagaattct cgtcagatgc ttgaagagat tgcgaatgac 1260
 cttctccaca atctctctaa gcttcagcat gotccaagtg taccatttca ggaaagacca 1320
 cctgatacag agactccoga ggttgatgaa gaccaagaag atggggataa aagatgggat 1380
 cggattcag acatggatgt tgatgatgac cgtaaaccta taccaagcag agtaaaaaga 1440
 gaagctgttg aaccagatac aaaggacaag gatggactga aaggaattat ggagcgtgga 1500
 aaaggttgtg aggtggaggt ggatgagagt ggaagcacta aggttacagg agtaaaccca 1560
 gtgggagtgg aggaagcaag tgtgaaaatg gaagaggaag gaacaaacaa ggggtggggcg 1620
 gagcaggcgt ctctctctaa aacataagac tcggagcttc taatttcttg ctacttttc 1680
 tgtctatcaa atgttgctag ttaagtttct ggagttgttg ttgttgtaag cactctctg 1740
 ttttagagga ttgagcacgg atatgtattt attcgttgca tgtctgaatg atgatatgat 1800
 atgacaa 1807

<210> 2
 <211> 501
 <212> PRT
 <213> Arabidopsis thaliana
 <400> 2

Met Asp Thr Gly Gly Asn Ser Leu Ala Ser Gly Pro Asp Gly Val Lys
 1 5 10 15

Arg Lys Val Cys Tyr Phe Tyr Asp Pro Glu Val Gly Asn Tyr Tyr Tyr
 20 25 30

Gly Gln Gly His Pro Met Lys Pro His Arg Ile Arg Met Thr His Ala
 35 40 45

Leu Leu Ala His Tyr Gly Leu Leu Gln His Met Gln Val Leu Lys Pro
 50 55 60

Phe Pro Ala Arg Glu Arg Asp Leu Cys Arg Phe His Ala Asp Asp Tyr
 65 70 75 80

Val Ser Phe Leu Arg Ser Ile Thr Pro Glu Thr Gln Gln Asp Gln Ile
 85 90 95

Arg Gln Leu Lys Arg Phe Asn Val Gly Glu Asp Cys Pro Val Phe Asp
100 105 110

Gly Leu Tyr Ser Phe Cys Gln Thr Tyr Ala Gly Gly Ser Val Gly Gly
115 120 125

Ser Val Lys Leu Asn His Gly Leu Cys Asp Ile Ala Ile Asn Trp Ala
130 135 140

Gly Gly Leu His His Ala Lys Lys Cys Glu Ala Ser Gly Phe Cys Tyr
145 150 155 160

Val Asn Asp Ile Val Leu Ala Ile Leu Glu Leu Leu Lys Gln His Glu
165 170 175

Arg Val Leu Tyr Val Asp Ile Asp Ile His His Gly Asp Gly Val Glu
180 185 190

Glu Ala Phe Tyr Ala Thr Asp Arg Val Met Thr Val Ser Phe His Lys
195 200 205

Phe Gly Asp Tyr Phe Pro Gly Thr Gly His Ile Gln Asp Ile Gly Tyr
210 215 220

Gly Ser Gly Lys Tyr Tyr Ser Leu Asn Val Pro Leu Asp Asp Gly Ile
225 230 235 240

Asp Asp Glu Ser Tyr His Leu Leu Phe Lys Pro Ile Met Gly Lys Val
245 250 255

Met Glu Ile Phe Arg Pro Gly Ala Val Val Leu Gln Cys Gly Ala Asp
260 265 270

Ser Leu Ser Gly Asp Arg Leu Gly Cys Phe Asn Leu Ser Ile Lys Gly
275 280 285

His Ala Glu Cys Val Lys Phe Met Arg Ser Phe Asn Val Pro Leu Leu
290 295 300

Leu Leu Gly Gly Gly Gly Tyr Thr Ile Arg Asn Val Ala Arg Cys Trp
305 310 315 320

Cys Tyr Glu Thr Gly Val Ala Leu Gly Val Glu Val Gln Asp Lys Met
325 330 335

Pro Glu His Glu Tyr Tyr Glu Tyr Phe Gly Pro Asp Tyr Thr Leu His
340 345 350

Val Ala Pro Ser Asn Met Glu Asn Lys Asn Ser Arg Gln Met Leu Glu
355 360 365

Glu Ile Arg Asn Asp Leu Leu His Asn Leu Ser Lys Leu Gln His Ala
370 375 380

Pro Ser Val Pro Phe Gln Glu Arg Pro Pro Asp Thr Glu Thr Pro Glu
385 390 395 400

Val Asp Glu Asp Gln Glu Asp Gly Asp Lys Arg Trp Asp Pro Asp Ser
405 410 415

Asp Met Asp Val Asp Asp Asp Arg Lys Pro Ile Pro Ser Arg Val Lys
420 425 430

Arg Glu Ala Val Glu Pro Asp Thr Lys Asp Lys Asp Gly Leu Lys Gly
435 440 445

Ile Met Glu Arg Gly Lys Gly Cys Glu Val Glu Val Asp Glu Ser Gly
450 455 460

Ser Thr Lys Val Thr Gly Val Asn Pro Val Gly Val Glu Glu Ala Ser
465 470 475 480

Val Lys Met Glu Glu Glu Gly Thr Asn Lys Gly Gly Ala Glu Gln Ala
485 490 495

Phe Pro Pro Lys Thr
500

<210> 3
<211> 1800
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1374)..(1374)
<223> "n" is a or g or c or t

<400> 3
gigccacaaa ctccatagtaa tgaatttctc aggcatttgt gacacaaaatt ttgatctgag 60
tataacttgg gaatagagag agactctgag tgagagagag attctgagtg agagacggag 120
atggaggag agaaaagggg catctctctg cggtagggag agagaggag taagaggaga 180

gtacagttact tataacgagcc gaagatogga gactactact acggtdaagg ccaccogatg 240
 aagccctacc ggatccgtat ggctcatagc ctaatcattc actatcacct ccaccgtcgc 300
 ttagaaatca gtgcgcctag cctcgctgac gcttcogata tgggcgatt ccattcgccg 360
 gagtatgttg acttcctcgc ttccgtttcg ccggaatcta tgggcgates ttccgtgca 420
 cgaaacctaa ggcgattcaa tgcgggtgag gattgtctcg tcttcgaagg actttttgat 480
 ttttgccgtg ctccgcgcgg aggttctatt ggtgctgccg tcaaattaaa cagacaggac 540
 gctgatatcg ctatcaattg gggcggtggg ctccaccatg ctaagaaaag cgaggcttct 600
 gggttttgct atgtaaacga catcgctgta gggattctgg agttgctcaa gatgtttaag 660
 cgggttctct acatagatat tgatgtccac catggagatg gagtggaaga agcgttttac 720
 accactgata gagttatgac tgtttctttc cacaatttg gggacttttt ccaggaact 780
 ggccacataa gagatgttgg cgtcgaaaaa gggaaatact atgctctaaa tgttccacta 840
 aacgatggta tggacgatga aagtttccgc agcttgttta gacctcttat ccagaagggt 900
 atggaagtgt atcagccaga ggcagttgtt ctccagtgtg gtgctgactc cttaagtgg 960
 gatcggttgg gttgcttcaa ctatcagtc aagggtcacg ctgattgctt tgggttctta 1020
 agatcttaca acgttctctt catggtgttg ggtggtgaag ggtatactat tcgaaatgtt 1080
 gcccgttgct ggtgttatga gactgcagtt gctgttggag tagagccgga caacaaactc 1140
 ccttacaatg agtattttga gtatttcggc ccagattata cgcttcattg cgacccaagt 1200
 cctatggaga atttaaacac gcccaaagat atggagagga taaggaaacac gttgctggaa 1260
 caactttcgg gactaatata cgcacctagc gtccagtttc agcacacacc accagtcaat 1320
 cgagtttttg acgagccgga agatgacatg gagacaagac caaaacctcg catntggagt 1380
 ggaactgcga ctlatgaatc agacagtgaac gatgatgata aacctcttca tggttactca 1440
 tgcgtgggtg gcgcaactac ggacagggac tctaccggtg aagatgaaat ggatgacgat 1500
 aaccagagc cagacgtgaa tctccatcg tcttaacca gcttgatggt ttggtgtctc 1560
 ttttgcata tgataatgtc ggcagattta agaaacaagt taggggaatg aatgattctt 1620
 tgatgttttt tcagcaacct tttagttct gtgaaaaacg tgcattgatt agaacagtga 1680
 caactgacta gtattttggc ccaagttaga aaatcagaat atgtgaaaaa aaaaaaaaaa 1740
 aaaaaaaagg ggggcgcctc tagaggatcc aagcttaagt acggtgcat ggcagctcat 1800

<210> 4

<211> 471

<212> FRT

<213> *Arabidopsis thaliana*

<220>

<221> MISC_FEATURE

<222> (418)...(418)

<223> "Xaa" is any amino acid

<400> 4

Met Glu Ala Asp Glu Ser Gly Ile Ser Leu Pro Ser Gly Pro Asp Gly
1 5 10 15

Arg Lys Arg Arg Val Ser Tyr Phe Tyr Glu Pro Thr Ile Gly Asp Tyr
20 25 30

Tyr Tyr Gly Gln Gly His Pro Met Lys Pro His Arg Ile Arg Met Ala
35 40 45

His Ser Leu Ile Ile His Tyr His Leu His Arg Arg Leu Glu Ile Ser
50 55 60

Arg Pro Ser Leu Ala Asp Ala Ser Asp Ile Gly Arg Phe His Ser Pro
65 70 75 80

Glu Tyr Val Asp Phe Leu Ala Ser Val Ser Pro Glu Ser Met Gly Asp
85 90 95

Pro Ser Ala Ala Arg Asn Leu Arg Arg Phe Asn Val Gly Glu Asp Cys
100 105 110

Pro Val Phe Asp Gly Leu Phe Asp Phe Cys Arg Ala Ser Ala Gly Gly
115 120 125

Ser Ile Gly Ala Ala Val Lys Leu Asn Arg Gln Asp Ala Asp Ile Ala
130 135 140

Ile Asn Trp Gly Gly Gly Leu His His Ala Lys Lys Ser Glu Ala Ser
145 150 155 160

Gly Phe Cys Tyr Val Asn Asp Ile Val Leu Gly Ile Leu Glu Leu Leu
165 170 175

Lys Met Phe Lys Arg Val Leu Tyr Ile Asp Ile Asp Val His His Gly
180 185 190

Asp Gly Val Glu Glu Ala Phe Tyr Thr Thr Asp Arg Val Met Thr Val
195 200 205

Ser Phe His Lys Phe Gly Asp Phe Phe Pro Gly Thr Gly His Ile Arg
210 215 220

Asp Val Gly Ala Glu Lys Gly Lys Tyr Tyr Ala Leu Asn Val Pro Leu
225 230 235 240

Asn Asp Gly Met Asp Asp Glu Ser Phe Arg Ser Leu Phe Arg Pro Leu
245 250 255

Ile Gln Lys Val Met Glu Val Tyr Gln Pro Glu Ala Val Val Leu Gln
260 265 270

Cys Gly Ala Asp Ser Leu Ser Gly Asp Arg Leu Gly Cys Phe Asn Leu
275 280 285

Ser Val Lys Gly His Ala Asp Cys Leu Arg Phe Leu Arg Ser Tyr Asn
290 295 300

Val Pro Leu Met Val Leu Gly Gly Glu Gly Tyr Thr Ile Arg Asn Val
305 310 315 320

Ala Arg Cys Trp Cys Tyr Glu Thr Ala Val Ala Val Gly Val Glu Pro
325 330 335

Asp Asn Lys Leu Pro Tyr Asn Glu Tyr Phe Glu Tyr Phe Gly Pro Asp
340 345 350

Tyr Thr Leu His Val Asp Pro Ser Pro Met Glu Asn Leu Asn Thr Pro
355 360 365

Lys Asp Met Glu Arg Ile Arg Asn Thr Leu Leu Glu Gln Leu Ser Gly
370 375 380

Leu Ile His Ala Pro Ser Val Gln Phe Gln His Thr Pro Pro Val Asn
385 390 395 400

Arg Val Leu Asp Glu Pro Glu Asp Asp Met Glu Thr Arg Pro Lys Pro
405 410 415

Arg Xaa Trp Ser Gly Thr Ala Thr Tyr Glu Ser Asp Ser Asp Asp Asp
420 425 430

Asp Lys Pro Leu His Gly Tyr Ser Cys Arg Gly Gly Ala Thr Thr Asp
435 440 445

Arg Asp Ser Thr Gly Glu Asp Glu Met Asp Asp Asp Asn Pro Glu Pro
 450 455 460

Asp Val Asn Pro Pro Ser Ser
 465 470

<210> 5
 <211> 939
 <212> DNA
 <213> Arabidopsis thaliana

<400> 5
 cacgcgtccg taaaaatcct ctctttttct caaccttgat tcttagccat ggagttctgg 60
 ggaattgaag ttaaatcagg aaagccagtt acagtgactc ctgaagaagg cattcttato 120
 cacgtttctc aggcatecgt tggagaatgt aaaaacaaga agggagagtt tgtgccttta 180
 catgtaaagg ttgggaacca gaacttggtt ctgggaactc tatcgactga gaacatccct 240
 cagcttttct gtgatttggg attcgacaag gagtttgagc tttctcacac ttggggaaaa 300
 ggaagtgttt actttgttgg atacaaaact cccaacattg agccacaagg ctattctgag 360
 gaagaagagg aagaagagga agaagttcct gctgggaatg ctgccaaagg tgtagctaaa 420
 ccaaaggcta agcctgcaga agtgaagcca gctgttgatg atgaagagga tgagtctgat 480
 tetgacggaa tggatgaaga tgattctgat ggtgaggatt ctgaggaaga agagcctaca 540
 cctaagaagc ctgcatcaag caagaagaga gctaataaaa ctacccctaa agcacctgtg 600
 tcagcaaaga aggcgaaagt agcagttact cctcagaaaa cagatgagaa gaagaaaggg 660
 ggaaaggctg caaaccagag cccaaagtgc gccagtcaag tctcatgtgg ttcattgcaag 720
 aagactttca actcagggaa tgcacttgag tctcacaaca aggccaaagca cgctgctgcc 780
 aagtgaagtg gtttcttatt agagcttggtg atttctatgg aattttgcct gtagtcttta 840
 tgaaaccttc ggattttctt atattttctt ttgataacaa gagtcttaat gaaagagagc 900
 cagttggagt cttaaaaaaa aaaaaaaaag ggcggccgc 939

<210> 6
 <211> 245
 <212> PRT
 <213> Arabidopsis thaliana

<400> 6

Met Glu Phe Trp Gly Ile Glu Val Lys Ser Gly Lys Pro Val Thr Val
 1 5 10 15

Thr Pro Glu Glu Gly Ile Leu Ile His Val Ser Glu Ala Ser Leu Gly
 20 25 30

Glu Cys Lys Asn Lys Lys Gly Glu Phe Val Pro Leu His Val Lys Val
 35 40 45

Gly Asn Gln Asn Leu Val Leu Gly Thr Leu Ser Thr Glu Asn Ile Pro
 50 55 60

Gln Leu Phe Cys Asp Leu Val Phe Asp Lys Glu Phe Glu Leu Ser His
 65 70 75 80

Thr Trp Gly Lys Gly Ser Val Tyr Phe Val Gly Tyr Lys Thr Pro Asn
 85 90 95

Ile Glu Pro Gln Gly Tyr Ser Glu Glu Glu Glu Glu Glu Glu Glu
 100 105 110

Val Pro Ala Gly Asn Ala Ala Lys Ala Val Ala Lys Pro Lys Ala Lys
 115 120 125

Pro Ala Glu Val Lys Pro Ala Val Asp Asp Glu Glu Asp Glu Ser Asp
 130 135 140

Ser Asp Gly Met Asp Glu Asp Asp Ser Asp Gly Glu Asp Ser Glu Glu
 145 150 155 160

Glu Glu Pro Thr Pro Lys Lys Pro Ala Ser Ser Lys Lys Arg Ala Asn
 165 170 175

Glu Thr Thr Pro Lys Ala Pro Val Ser Ala Lys Lys Ala Lys Val Ala
 180 185 190

Val Thr Pro Gln Lys Thr Asp Glu Lys Lys Lys Gly Gly Lys Ala Ala
 195 200 205

Asn Gln Ser Pro Lys Ser Ala Ser Gln Val Ser Cys Gly Ser Cys Lys
 210 215 220

Lys Thr Phe Asn Ser Gly Asn Ala Leu Glu Ser His Asn Lys Ala Lys
 225 230 235 240

His Ala Ala Ala Lys
 245

<210> 7

<211> 1212

<212> DNA

<213> Arabidopsis thaliana

```

<400> 7
gtcttttgcgt tctaaaaaaa aacctaacaa cctctctttct ctcttctctcg ttcaacaaca      60
atggagttct ggggagttgc ggtgacacca aaaaacgcta ctaaggtgac tctgaagaa      120
gacagccttg tccacatttc tcagggttca cttgaactgca cagtgaatc tggagaatct      180
gtggttttga gtgtgaactgt tgggtggggt aaacttgta ttggaacact ttcacaagac      240
aagttccttc agattagctt tgatttgggt tttgataaag agtttgagct ttcacacagc      300
ggtaccaaag caaatgttca ttccattggc tacaaatccc ccaacatcga gcaggatgac      360
ttcactagtt cggatgatga ggatgttctt gaagctgttc ctgctcctgc cctactgct      420
gttactgcca acggaaatgc tggagcagct gttgtcaagg ctgacacaaa gccaaaggcc      480
aaacctgccg aagtgaagcc tgcagaagag aagcctgaat cagacgagga agatgagtt      540
gatgatgaag atgagttctga agaggatgat gactctgaga aaggaatgga tgttgatgaa      600
gatgactcag atgatgacga ggaggaggat tctgaggatg aagaagagga ggagactcct      660
aagaagcctg agccaatcaa caagaagagg ccaaatgaat ctgtatccaa aacaccctgc      720
tctggaaaga aggcaaaacc agcagcagca ccagcttcta ctctcagaa gacagagaag      780
aagaaaggag gacacaccgc cacaccacac ccagctaaga aggggtgaaa gtctcctgtg      840
aatgctaacc agagcccca gttctggaggt caatcatccg gtggttaaca caacaagaag      900
ccattcaact caggcaaaaca atttggtggt tccaacaaca agggttctaa caagggcaag      960
ggaaagggta gagcttaagg acgtggatca aggagaggtt ttgggttttc gaggtagatga      1020
tgaaaacact tggaagtgtg gttttggatt tttatcttat tttattagta taacttgta      1080
tcggatgagc tattttgagt atttgcaatt tctactttcc tatgtaattc agtatatgaa      1140
tatttgctga aatgagaaag aagactcgaa ttgcaaacaa aaaaaaaaaa aaaaaaaaaa      1200
aaggcgggcc gc      1212

```

```

<210> 8
<211> 305
<212> PRT
<213> Arabidopsis thaliana

```

```

<400> 8

```

```

Met Glu Phe Trp Gly Val Ala Val Thr Pro Lys Asn Ala Thr Lys Val
1           5           10           15

```

```

Thr Pro Glu Glu Asp Ser Leu Val His Ile Ser Gln Ala Ser Leu Asp
          20          25          30

```

Cys Thr Val Lys Ser Gly Glu Ser Val Val Leu Ser Val Thr Val Gly
 35 40 45

Gly Ala Lys Leu Val Ile Gly Thr Leu Ser Gln Asp Lys Phe Pro Gln
 50 55 60

Ile Ser Phe Asp Leu Val Phe Asp Lys Glu Phe Glu Leu Ser His Ser
 65 70 75 80

Gly Thr Lys Ala Asn Val His Phe Ile Gly Tyr Lys Ser Pro Asn Ile
 85 90 95

Glu Gln Asp Asp Phe Thr Ser Ser Asp Asp Glu Asp Val Pro Glu Ala
 100 105 110

Val Pro Ala Pro Ala Pro Thr Ala Val Thr Ala Asn Gly Asn Ala Gly
 115 120 125

Ala Ala Val Val Lys Ala Asp Thr Lys Pro Lys Ala Lys Pro Ala Glu
 130 135 140

Val Lys Pro Ala Glu Glu Lys Pro Glu Ser Asp Glu Glu Asp Glu Ser
 145 150 155 160

Asp Asp Glu Asp Glu Ser Glu Glu Asp Asp Asp Ser Glu Lys Gly Met
 165 170 175

Asp Val Asp Glu Asp Asp Ser Asp Asp Asp Glu Glu Glu Asp Ser Glu
 180 185 190

Asp Glu Glu Glu Glu Glu Thr Pro Lys Lys Pro Glu Pro Ile Asn Lys
 195 200 205

Lys Arg Pro Asn Glu Ser Val Ser Lys Thr Pro Val Ser Gly Lys Lys
 210 215 220

Ala Lys Pro Ala Ala Ala Pro Ala Ser Thr Pro Gln Lys Thr Glu Lys
 225 230 235 240

Lys Lys Gly Gly His Thr Ala Thr Pro His Pro Ala Lys Lys Gly Gly
 245 250 255

Lys Ser Pro Val Asn Ala Asn Gln Ser Pro Lys Ser Gly Gly Gln Ser
 260 265 270

Ser Gly Gly Asn Asn Asn Lys Lys Pro Phe Asn Ser Gly Lys Gln Phe
 275 280 285

Gly Gly Ser Asn Asn Lys Gly Ser Asn Lys Gly Lys Gly Lys Gly Arg
 290 295 300

Ala
 305

<210> 9
 <211> 40
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 9
 cggaggactg tcttcgatac ggaggactgt cctccgtgca

40

<210> 10
 <211> 28
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 10
 aattgagctc agccatggag ttctgggg

28

<210> 11
 <211> 29
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 11
 acgtggatcc agaaaccact tcaattggc

29

<210> 12
 <211> 513
 <212> PRT
 <213> Zea mays

<400> 12

Met Asp Pro Ser Ser Ala Gly Ser Gly Gly Asn Ser Leu Pro Ser Val
 1 5 10 15

Gly Pro Asp Gly Gln Lys Arg Arg Val Cys Tyr Phe Tyr Asp Pro Asp
 20 25 30

Val Gly Asn Tyr Tyr Tyr Gly Gln Gly His Pro Met Lys Pro His Arg
35 40 45

Ile Arg Met Thr His Ser Leu Leu Ala Arg Tyr Gly Leu Leu Asn Gln
50 55 60

Met Gln Val Tyr Arg Pro Asn Pro Ala Arg Glu Arg Glu Leu Cys Arg
65 70 75 80

Phe His Ala Glu Glu Tyr Ile Asn Phe Leu Arg Ser Val Thr Pro Glu
85 90 95

Thr Gln Gln Asp Gln Ile Arg Leu Leu Lys Arg Phe Asn Val Gly Glu
100 105 110

Glu Cys Pro Val Leu Asp Gly Leu Tyr Ser Phe Cys Gln Thr Tyr Ala
115 120 125

Gly Ala Ser Val Gly Gly Ala Val Lys Phe Asn His Gly His Asp Ile
130 135 140

Ala Ile Asn Trp Ser Gly Gly Leu His His Ala Lys Lys Cys Glu Ala
145 150 155 160

Ser Gly Phe Cys Tyr Val Asn Asp Ile Val Leu Ala Ile Leu Glu Leu
165 170 175

Leu Lys His His Glu Arg Val Leu Tyr Val Asp Ile Asp Ile His His
180 185 190

Gly Asp Gly Val Glu Glu Ala Phe Tyr Thr Thr Asp Arg Val Met Thr
195 200 205

Val Ser Phe His Lys Phe Gly Asp Tyr Phe Pro Gly Thr Gly Asp Ile
210 215 220

Arg Asp Ile Gly His Ser Lys Gly Lys Tyr Tyr Ser Leu Asn Val Pro
225 230 235 240

Leu Asp Asp Gly Ile Asp Asp Glu Ser Tyr Gln Ser Leu Phe Lys Pro
245 250 255

Ile Met Gly Lys Val Met Glu Val Phe Arg Pro Gly Ala Val Val Leu
260 265 270

Gln Cys Gly Ala Asp Ser Leu Ser Gly Asp Arg Leu Gly Cys Phe Asn
 275 280 285

Leu Ser Ile Lys Gly His Ala Glu Cys Val Arg Tyr Met Arg Ser Phe
 290 295 300

Asn Val Pro Leu Leu Leu Leu Gly Gly Gly Gly Tyr Thr Ile Arg Asn
 305 310 315 320

Val Ala Arg Cys Trp Cys Tyr Glu Thr Gly Val Ala Leu Gly Gln Glu
 325 330 335

Pro Glu Asp Lys Met Pro Val Asn Glu Tyr Tyr Glu Tyr Phe Gly Pro
 340 345 350

Asp Tyr Thr Leu His Val Ala Pro Ser Asn Met Glu Asn Lys Asn Thr
 355 360 365

Arg Gln Gln Leu Asp Asp Ile Arg Ser Lys Leu Ser Lys Leu Arg His
 370 375 380

Ala Pro Ser Val His Phe Gln Glu Arg Val Pro Asp Thr Glu Ile Pro
 385 390 395 400

Glu Gln Asp Glu Asp Gln Asp Asp Pro Asp Glu Arg His Asp Pro Asp
 405 410 415

Ser Asp Met Glu Val Asp Asp His Lys Ala Val Glu Glu Ser Ser Arg
 420 425 430

Arg Ser Ile Leu Gly Ile Lys Ile Lys Arg Glu Phe Gly Glu Asn Ala
 435 440 445

Thr Arg Val Gln Asp Gly Gly Arg Val Ala Ser Glu His Arg Gly Leu
 450 455 460

Glu Pro Met Ala Glu Asp Ile Gly Ser Ser Lys Gln Ala Pro Gln Ala
 465 470 475 480

Asp Ala Ser Ala Met Ala Ile Asp Glu Pro Ser Asn Val Lys Asn Glu
 485 490 495

Pro Glu Ser Ser Thr Lys Leu Gln Gly Gln Ala Ala Ala Tyr His Lys
 500 505 510

Pro

<210> 13
 <211> 433
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 13

Met Val Tyr Glu Ala Thr Pro Phe Asp Pro Ile Thr Val Lys Pro Ser
 1 5 10 15

Asp Lys Arg Arg Val Ala Tyr Phe Tyr Asp Ala Asp Val Gly Asn Tyr
 20 25 30

Ala Tyr Gly Ala Gly His Pro Met Lys Pro His Arg Ile Arg Met Ala
 35 40 45

His Ser Leu Ile Met Asn Tyr Gly Leu Tyr Lys Lys Met Glu Ile Tyr
 50 55 60

Arg Ala Lys Pro Ala Thr Lys Gln Glu Met Cys Gln Phe His Thr Asp
 65 70 75 80

Glu Tyr Ile Asp Phe Leu Ser Arg Val Thr Pro Asp Asn Leu Glu Met
 85 90 95

Phe Lys Arg Glu Ser Val Lys Phe Asn Val Gly Asp Asp Cys Pro Val
 100 105 110

Phe Asp Gly Leu Tyr Glu Tyr Cys Ser Ile Ser Gly Gly Gly Ser Met
 115 120 125

Glu Gly Ala Ala Arg Leu Asn Arg Gly Lys Cys Asp Val Ala Val Asn
 130 135 140

Tyr Ala Gly Gly Leu His His Ala Lys Lys Ser Glu Ala Ser Gly Phe
 145 150 155 160

Cys Tyr Leu Asn Asp Ile Val Leu Gly Ile Ile Glu Leu Leu Arg Tyr
 165 170 175

His Pro Arg Val Leu Tyr Ile Asp Ile Asp Val His His Gly Asp Gly
 180 185 190

Val Glu Glu Ala Phe Tyr Thr Thr Asp Arg Val Met Thr Cys Ser Phe
 195 200 205

His Lys Tyr Gly Glu Phe Phe Pro Gly Thr Gly Glu Leu Arg Asp Ile
 210 215 220

Gly Val Gly Ala Gly Lys Asn Tyr Ala Val Asn Val Pro Leu Arg Asp
 225 230 235 240

Gly Ile Asp Asp Ala Thr Tyr Arg Ser Val Phe Glu Pro Val Ile Lys
 245 250 255

Lys Ile Met Glu Trp Tyr Gln Pro Ser Ala Val Val Leu Gln Cys Gly
 260 265 270

Gly Asp Ser Leu Ser Gly Asp Arg Leu Gly Cys Phe Asn Leu Ser Met
 275 280 285

Glu Gly His Ala Asn Cys Val Asn Tyr Val Lys Ser Phe Gly Ile Pro
 290 295 300

Met Met Val Val Gly Gly Gly Gly Tyr Thr Met Arg Asn Val Ala Arg
 305 310 315 320

Thr Trp Cys Phe Glu Thr Gly Leu Leu Asn Asn Val Val Leu Asp Lys
 325 330 335

Asp Leu Pro Tyr Asn Glu Tyr Tyr Glu Tyr Tyr Gly Pro Asp Tyr Lys
 340 345 350

Leu Ser Val Arg Pro Ser Asn Met Phe Asn Val Asn Thr Pro Glu Tyr
 355 360 365

Leu Asp Lys Val Met Thr Asn Ile Phe Ala Asn Leu Glu Asn Thr Lys
 370 375 380

Tyr Ala Pro Ser Val Gln Leu Asn His Thr Pro Arg Asp Ala Glu Asp
 385 390 395 400

Leu Gly Asp Val Glu Glu Asp Ser Ala Glu Ala Lys Asp Thr Lys Gly
 405 410 415

Gly Ser Gln Tyr Ala Arg Asp Leu His Val Glu His Asp Asn Glu Phe
 420 425 430

Tyr

<210> 14
 <211> 307
 <212> PRT
 <213> Zea mays

<400> 14

Met Glu Phe Trp Gly Leu Glu Val Lys Pro Gly Ser Thr Val Lys Cys
 1 5 10 15

Glu Pro Gly Tyr Gly Phe Val Leu His Leu Ser Gln Ala Ala Leu Gly
 20 25 30

Glu Ser Lys Lys Ser Asp Asn Ala Leu Met Tyr Val Lys Ile Asp Asp
 35 40 45

Gln Lys Leu Ala Ile Gly Thr Leu Ser Val Asp Lys Asn Pro His ile
 50 55 60

Gln Phe Asp Leu Ile Phe Asp Lys Glu Phe Glu Leu Ser His Thr Ser
 65 70 75 80

Lys Thr Thr Ser Val Phe Phe Thr Gly Tyr Lys Val Glu Gln Pro Phe
 85 90 95

Glu Glu Asp Glu Met Asp Leu Asp Ser Glu Asp Glu Asp Glu Glu Leu
 100 105 110

Asn Val Pro Val Val Lys Glu Asn Gly Lys Ala Asp Glu Lys Lys Gln
 115 120 125

Lys Ser Gln Glu Lys Ala Val Ala Ala Pro Ser Lys Ser Ser Pro Asp
 130 135 140

Ser Lys Lys Ser Lys Asp Asp Asp Asp Ser Asp Glu Asp Glu Thr Asp
 145 150 155 160

Asp Ser Asp Glu Asp Glu Thr Asp Asp Ser Asp Glu Gly Leu Ser Ser
 165 170 175

Glu Glu Gly Asp Asp Asp Ser Ser Asp Glu Asp Asp Thr Ser Asp Asp
 180 185 190

Glu Glu Glu Asp Thr Pro Thr Pro Lys Lys Pro Glu Val Gly Lys Lys
 195 200 205

Arg Pro Ala Glu Ser Ser Val Leu Lys Thr Pro Leu Ser Asp Lys Lys
 210 215 220

Ala Lys Val Ala Thr Pro Ser Ser Gln Lys Thr Gly Gly Lys Lys Gly
 225 230 235 240

Ala Ala Val His Val Ala Thr Pro His Pro Ala Lys Gly Lys Thr Ile
 245 250 255

Val Asn Asn Asp Lys Ser Val Lys Ser Pro Lys Ser Ala Pro Lys Ser
 260 265 270

Gly Gly Ser Val Pro Cys Lys Pro Cys Ser Lys Ser Phe Ile Ser Glu
 275 280 285

Thr Ala Leu Gln Ala His Ser Arg Ala Lys Met Gly Ala Ser Glu Ser
 290 295 300

Gln Val Gln
 305